determining that a given audio segment is not ascertainable, the location of the given audio segment within the audio signal being ascertainable;

locating a set of consecutive audio segments in the audio signal, the set of consecutive audio segments preceding the given audio segment and having a formant;

removing the formant from the set of audio segments to produce a set of residue segments having a pitch;

processing the pitch and the set of residue segments to produce a new set of residue segments; and

adding the formant of the consecutive set of audio segments to the new set of residue segments to produce an output audio segment."

The Applicant claims a method for generating a new audio segment including the step of determining that a given audio segment is unascertainable. For example, as claimed in dependent claim 2, the given audio segment may be missing from the audio stream. The claimed method locates a set of consecutive audio segments preceding the given audio segment, and processes those segments in the specific manner claimed in order to produce an output audio segment.

As the Office Action points out, Yeldener fails to teach or suggest a method for producing a new audio segment including a step of determining that a given audio segment is unascertainable. The Office Action suggests however that Shoham teaches tracking lost frames and using previous information to regenerate such information, and that it would be obvious to "modify the teachings of Yeldener with the lost frame tracking and recovery techniques as taught by Shoham because it would advantageously improve the reliability of the recovered speech information." The Applicant respectfully disagrees.

Yeldener is directed towards the provision of a speech encoding technique that provides high quality voice reconstruction at low to very low bit rates on the basis of a voicing probability determination. (Yeldener Col. 3 lines 59-62.) Yeldener does not address the issues associated with unascertainable segments or frames. Nowhere does Yeldener suggest that its teachings should be modified to reconstruct unascertainable frames.

Shoham is directed towards the provision of substitute excitation signals during frame erasure for a particular type of CELP speech coder as defined in the ITU G.729 standard. Though Shoham addresses how to reconstruct unascertainable frames, Shoham does not do so in accordance with the Applicant's claimed method of removing a formant from the set of audio segments to produce a set of residue segments having a pitch; processing the pitch and the set of residue segments to produce a new set of residue segments; and adding the formant of the consecutive set of audio segments to the new set of residue segments to produce an output audio segment.

Yeldener fails to teach or suggest that its teachings should be modified to include the claimed step of determining that a given audio segment is not ascertainable. Furthermore, even if one were to attempt to modify Yeldener to handle unascertainable frames, one would not be able to combine the teachings of Shoham with those of Yeldener to arrive at the Applicant's claimed invention.

First of all, Shoham teaches a method of providing substitute excitation signals during frame erasure for a standard CELP encoder, wherein each frame is determined to be voiced or unvoiced. According to Shoham, "the generation of a substitute excitation signal during periods of frame erasure is dependent on whether the erased frame is classified as voiced (periodic) or unvoiced (aperiodic)." (Shoham Col. 6 lines 2-5.) According to the teachings of Yeldener, each frame is associated with a voicing probability, and voiced and unvoiced portions of each frame are dealt with separately (Col. 3 lines 63-70). Thus, the teachings of Shoham would not aid one in modifying Yeldener to reconstruct unascertainable frames.

Secondly, even if Yeldener and Shoham could somehow be combined, the resultant combination would not teach or suggest the Applicant's claimed invention including the steps of determining that a given audio segment is not ascertainable, locating a set of consecutive audio segments in the audio signal, the set of consecutive audio segments preceding the given audio segment and having a formant; removing the formant from the set of audio segments to produce a set of residue segments having a pitch; processing the pitch and the set of residue segments to produce a new set of residue segments; and adding the formant of the consecutive set of audio segments to the new set of residue segments to produce an output audio segment. Yeldener does not address

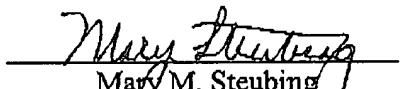
unascertainable frames, and Shoham teaches a method of regenerating lost audio frames that does not suggest the steps of the Applicant's claimed method – therefore no combination of Yeldener and Shoham can teach or suggest the Applicant's claimed invention.

Because no combination of Yeldener and Shoham can teach or suggest the Applicant's invention as set forth in claim 1, the Applicant respectfully requests that the rejection be withdrawn and that claim 1 and its dependent claims 2 – 11 be placed in condition for allowance. Applicant's independent claims 11 and 21 contain limitations similar to those set forth in claim 1. Therefore, Applicant respectfully requests that claim 11 and its dependent claims 12 – 20, and claim 21 and its dependent claims 22-31 be placed in condition for allowance.

Conclusion

Accordingly, Applicant asserts that the pending claims are now in condition for allowance. An indication of such is respectfully requested. Should further questions arise concerning this application, the Examiner is invited to call Applicant's attorney at the number listed below.

Respectfully Submitted,



Mary M. Steubing
Reg. No. 37,946
Attorney for Applicant
41 Jewett Street
Pepperell, MA 01463
(978) 433-2323

July 12, 2002